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(71)Applicant : KONICA CORP

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(72)Inventor : HIRAI YOKO  
MORI TAKAHIRO

## (54) METHOD FOR PROCESSING PHOTSENSITIVE PLANOGRAPHIC PRINTING PLATE

### (57)Abstract:

PROBLEM TO BE SOLVED: To provide a process for producing a photosensitive planographic printing plate which is excellent in both of developability and printing resistance and an erasing liquid which has excellent erasability on the photosensitive planographic printing plate produced by this process for production and is free of problems in environmental characteristics.

SOLUTION: (1) The photosensitive planographic printing plate provided with a photosensitive layer on the surface of a base which is provided with undulations of 3 to 30  $\mu$ m in the average wavelength of roughness or approximately spherical projections which are superposed with small pits having an average opening diameter of 0.2 to 3.0  $\mu$ m in a congested form on large pits having an average opening diameter of 3 to 30  $\mu$ m and has an average diameter of  $\geq 0.01$   $\mu$ m and below 1/2 the average opening diameter of the small pits within the small pits is processed with a developer contg.  $\geq 0.1$  mol/l at least one kind selected from saccharides, oximes, phenols and fluorinated alcohols. (2) This printing plate is subjected to image exposure and thereafter the images are erased by the erasing liquid substantially devoid of xylene.

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**CLAIMS**


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**[Claim(s)]**

[Claim 1] The small pit whose diameter of average opening is 0.2-3.0 micrometers is superimposed on the large pit whose boom hoisting or diameter of average opening whose average wavelength of granularity is 3-30 micrometers is 3-30 micrometers in the shape of high density. The photosensitive lithography version which prepared the photosensitive layer on this front face of the base material which has the front face which has the salient of the shape of the outline spherical surface which furthermore has 1/2 or less pitch diameter of the diameter of average opening of this small pit in the interior of this small pit by 0.01 micrometers or more The art of the photosensitive lithography version characterized by processing at least one sort of compounds chosen from a saccharide, oximes, phenols, and fluorine-ized alcohols with the developer containedl. 0.1 mols /or more.

[Claim 2] The art according to claim 1 characterized by the pitch diameter of a salient of the diameter of average opening of a small pit of the shape of 0.2-0.8 micrometers and the outline spherical surface being 1/4 or less [ of the diameter of average opening of this small pit ] in 0.01 micrometers or more.

[Claim 3] The art according to claim 1 characterized by the ratio of the pit depth to the diameter of opening of a small pit being 0.2 or less.

[Claim 4] The art according to claim 1 characterized by forming between outline spherical-surface-like salients in respect of being smooth.

[Claim 5] The small pit whose diameter of average opening is 0.2-3.0 micrometers is superimposed on the large pit whose boom hoisting or diameter of average opening whose average wavelength of granularity is 3-30 micrometers is 3-30 micrometers in the shape of high density. The photosensitive lithography version which prepared the photosensitive layer on this front face of the base material which has the front face which has the salient of the shape of the outline spherical surface which furthermore has 1/2 or less pitch diameter of the diameter of average opening of a small pit in the interior of this small pit by 0.01 micrometers or more The art of the photosensitive lithography version characterized by eliminating with the elimination liquid which does not contain a xylene substantially after carrying out picture exposure.

[Claim 6] The art according to claim 5 characterized by the pitch diameter of a salient of the diameter of average opening of a small pit of the shape of 0.2-0.8 micrometers and the outline spherical surface being 1/4 or less [ of the diameter of average opening of a small pit ] in 0.01 micrometers or more.

[Claim 7] The art according to claim 5 characterized by the ratio of the pit depth to the diameter of opening of a small pit being 0.2 or less.

[Claim 8] The art according to claim 5 characterized by forming between outline spherical-surface-like salients in respect of being smooth.

[Claim 9] The art of the photosensitive lithography version characterized by processing at least one sort of compounds chosen from a saccharide, oximes, phenols, and fluoridation alcohols in the photosensitive lithography version which prepared the photosensitive layer on this front face of the base material which has the front face which has the salient of the shape of the outline spherical surface whose pitch diameter is 0.01-0.5 micrometers on the whole surface with the

developer containedl. 0.1 mols /or more.

[Claim 10] The art according to claim 9 characterized by having boom hoisting of the wavelength whose configuration of the field which connects the peak of an outline spherical-surface-like salient and is formed is 2 to 50 times the pitch diameter of this salient.

[Claim 11] The art according to claim 9 characterized by forming between outline spherical-surface-like salients in respect of being smooth.

[Claim 12] The art of the photosensitive lithography version characterized by eliminating with the elimination liquid which does not contain a xylene substantially after a pitch diameter carries out picture exposure and develops the photosensitive lithography version which prepared the photosensitive layer on the whole surface on this front face of the base material which has the front face which has the salient of the shape of the outline spherical surface which is 0.01-0.5 micrometers.

[Claim 13] The art according to claim 12 characterized by having boom hoisting of the wavelength whose configuration of the field which connects the peak of an outline spherical-surface-like salient and is formed is 2 to 50 times the pitch diameter of this salient.

[Claim 14] The art according to claim 12 characterized by forming between outline spherical-surface-like salients in respect of being smooth.

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## DETAILED DESCRIPTION

## [Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the split-face-ized (hydrophilicity-izing) technology of the base material of this photosensitive lithography version, the developer of the photosensitive lithography version which has this base material, and the elimination liquid of the lithography version which uses the split face of this base material as a printing plate in more detail about the art of the photosensitive lithography version.

[0002]

[Description of the Prior Art] The photosensitive lithography version which prepared the photosensitive layer which contains o-quinone diazide compound as a photosensitive component on the aluminum base material as a photosensitive lithography version (PS plate) is used. In the case of this kind of positive-type PS plate, the silicate solution of high pH has been used as an elution developer of the PS plate by which picture exposure was carried out. Since this silicate solution has not only development but the function which hydrophilicity-izes an aluminum plate, it has the advantage which does not need the process which hydrophilicity-izes a base material beforehand. However, since this silicate solution is a strong base (pH 12 or more), the aluminum of an aluminum base material dissolves in a developer at the time of the problem in the environmental side in waste fluid processing of a developer, and a development, it re-deposits, adheres to a PS plate, and it becomes dirt of a picture or it has problems, such as blocking the spray pipe of an auto-processor. For the improvement of this problem, a silicate is not contained as a developer but the method of hydrophilicity-izing the support surface beforehand at the time of base material manufacture of a PS plate for the reason is proposed using the developer of low pH (JP,7-314937,A etc.).

[0003] By the way, in order to improve water retention on the front face of a version of the lithography version created using the photosensitive lithography version, detailed \*\*\*\* was further embedded on the anodic oxidation of a complicated concave grain, the concave increased the surface area of a water retention layer several times, and the PS plate which prepared the photosensitive layer on this front face of the aluminum plate which has the front face called the "\*\*\*\* grain" which carried out desensitization processing on it was announced from the Okamoto chemistry.

[0004] It is the features that the aluminum base material which has this \*\*\*\* grain has good development nature, and that the standup in printing is good. However, since adhesion of the interface of a photosensitive layer and a grain is weak, a problem is in print durability.

[0005] The elimination liquid which, on the other hand, eliminates the unnecessary picture on the lithography version created with the photosensitive lithography version is well-known, and the elimination liquid which contains a xylene as elimination liquid is known. However, since a xylene is a highly poisonous substance and it is detrimental to a human body, the elimination (xylene free-lancer) liquid which does not contain a xylene as an environmental cure is known. That is, it is made to spread, and since the erasability of a picture is bad compared with the conventional thing (elimination liquid containing a xylene), well-known xylene free elimination liquid has the problem to which the working efficiency of lithographic plate work falls.

[0006]

[Problem(s) to be Solved by the Invention] it is offering the elimination liquid which excels [ purpose / which the 1st purpose of this invention is / both / offering the manufacture method of the lithography version both development nature and print durability having been excellent and is the 2nd ] in the erasability to the lithography version manufactured by this manufacture method, and does not have a problem in environment nature for the purpose of this invention solving the problem of the above-mentioned Prior art

[0007]

[Means for Solving the Problem] The 1st of the above-mentioned this invention and the 2nd purpose are attained by following the (1) - (14).

[0008] (1) Superimpose the small pit whose diameter of average opening is 0.2-3.0 micrometers in the shape of high density on the large pit whose boom hoisting or diameter of average opening whose average wavelength of granularity is 3-30 micrometers is 3-30 micrometers. The photosensitive lithography version which prepared the photosensitive layer on this front face of the base material which has the front face which has the salient of the shape of the outline spherical surface which furthermore has 1/2 or less pitch diameter of the diameter of average opening of this small pit in the interior of this small pit by 0.01 micrometers or more The art of the photosensitive lithography version characterized by processing at least one sort of compounds chosen from a saccharide, oximes, phenols, and fluoridation alcohols with the developer containedl. 0.1 mols /or more.

[0009] (2) An art given in the above (1) characterized by the pitch diameter of a salient of the diameter of average opening of a small pit of the shape of 0.2-0.8 micrometers and the outline spherical surface being 1/4 or less [ of the diameter of average opening of this small pit ] in 0.01 micrometers or more.

[0010] (3) An art given in the above (1) characterized by the ratio of the pit depth to the diameter of opening of a small pit being 0.2 or less.

[0011] (4) An art given in the above (1) characterized by forming between outline spherical-surface-like salients in respect of being smooth.

[0012] (5) Superimpose the small pit whose diameter of average opening is 0.2-3.0 micrometers in the shape of high density on the large pit whose boom hoisting or diameter of average opening whose average wavelength of granularity is 3-30 micrometers is 3-30 micrometers. The photosensitive lithography version which prepared the photosensitive layer on this front face of the base material which has the front face which has the salient of the shape of the outline spherical surface which furthermore has 1/2 or less pitch diameter of the diameter of average opening of a small pit in the interior of this small pit by 0.01 micrometers or more The art of the photosensitive lithography version characterized by eliminating with the elimination liquid which does not contain a xylene substantially after carrying out picture exposure.

[0013] (6) An art given in the above (5) characterized by the pitch diameter of a salient of the diameter of average opening of a small pit of the shape of 0.2-0.8 micrometers and the outline spherical surface being 1/4 or less [ of the diameter of average opening of a small pit ] in 0.01 micrometers or more.

[0014] (7) An art given in the above (5) characterized by the ratio of the pit depth to the diameter of opening of a small pit being 0.2 or less.

[0015] (8) An art given in the above (5) characterized by forming between outline spherical-surface-like salients in respect of being smooth.

[0016] (9) The art of the photosensitive lithography version characterized by processing at least one sort of compounds chosen from a saccharide, oximes, phenols, and fluoridation alcohols in the photosensitive lithography version which prepared the photosensitive layer on this front face of the base material which has the front face which has the salient of the shape of the outline spherical surface whose pitch diameter is 0.01-0.5 micrometers on the whole surface with the developer containedl. 0.1 mols /or more.

[0017] (10) An art given in the above (9) characterized by having boom hoisting of the wavelength whose configuration of the field which connects the peak of an outline spherical-surface-like salient and is formed is 2 to 50 times the pitch diameter of this salient.

[0018] (11) An art given in the above (9) characterized by forming between outline spherical-surface-like salients in respect of being smooth.

[0019] (12) The art of the photosensitive lithography version characterized by eliminating with the elimination liquid which does not contain a xylene substantially after a pitch diameter carries out picture exposure and develops the photosensitive lithography version which prepared the photosensitive layer on the whole surface on this front face of the base material which has the front face which has the salient of the shape of the outline spherical surface which is 0.01-0.5 micrometers.

[0020] (13) An art given in the above (12) characterized by having boom hoisting of the wavelength whose configuration of the field which connects the peak of an outline spherical-surface-like salient and is formed is 2 to 50 times the pitch diameter of this salient.

[0021] (14) An art given in the above (12) characterized by forming between outline spherical-surface-like salients in respect of being smooth.

[0022] Hereafter, this invention is explained in full detail.

[0023] Since the developer of this invention has the molecule larger than the developer which used the conventional silicic acid, osmosis of the photosensitive layer of the picture section is reduced and adhesion of a grain and an interface does not break. On the other hand, since development removal is promptly carried out taking advantage of the feature of a \*\*\*\* grain, even if the non-picture section uses the developer (henceforth a "non-silicic-acid developer") which does not contain the silicate which has difficulty a little as melting capacity of liquid, it can obtain good development nature.

[0024] Moreover, although the \*\*\*\* grain of this invention has the inclination for elimination liquid and the approaching picture section to be invaded when it is the elimination liquid using the conventional solvent, it can do elimination work good with the high elimination liquid of safety like this invention rather.

[0025] Base material>> of the <<claims 1-8 the base material of the photosensitive lithography version in invention concerning claims 1-8 The diameter of average opening superimposes a 0.2-3.0 micrometers (preferably 0.2-0.8 micrometers) small pit on the large pit whose boom hoisting or diameter of average opening whose average wavelength of granularity is 3-30 micrometers is 3-30 micrometers in the shape of high density. It is the base material which has the front face which has the salient of the shape of the outline spherical surface which furthermore has 1/2 or less (1/4 or less [ Preferably ]) pitch diameter of the diameter of average opening of this small pit in the interior of this small pit by 0.01 micrometers or more. A photosensitive layer is prepared on this front face, and a photosensitive layer is prepared on this front face of the base material which has the front face in which the ratio of the pit depth to the diameter of opening of a small pit is 0.2 or less, or between outline spherical-surface-like salients is further formed in respect of being smooth.

[0026] Next, manufacture of the base material which has the shape of above-mentioned surface type is explained.

[0027] An electrolysis split face is further formed after the processing which could use aluminum or its alloy board preferably as a base material, and carried out dissolution processing of the front face of an aluminum plate or an aluminum plate alloy board chemically, or combined two or more of the formation of a mechanical split face, the formation of an electrolysis split face, or chemical surface dissolution processings, and dissolution processing of the front face is carried out chemically, and anodizing is carried out and it manufactures. The almsgiving of this base material is also still better in hydrophilicity-ized processing.

[0028] In the following explanation, mechanical split-face-ization is the split-face-ized method of shaving off the support surface which applies the physical force. On the other hand, chemical surface dissolution processing is mainly surface dissolution processing by the acid or alkali, and it is also called chemical split-face-ization. In addition to this, washing by the solvent is also included with degreasing. Moreover, electric-field split-face-ization impresses alternating current in acidity and the electrolytic solution, and means the method of dissolving in the shape of a pit electrochemically, and split-face-izing a support surface.

[0029] First, how to obtain the front face which has the aforementioned large pit and a small pit

is explained. Here, the diameter of average opening of a large pit has a diameter of opening larger than 2 micrometers among [ all ] a pit, and averages the diameter of opening of the pit of dual structure where a pit 2 more micrometers or less exists in the interior. Moreover, the diameter of average opening of a small pit averages the diameter of opening of the pit of the structure where the diameter of opening is 2 micrometers or less among [ all ] a pit, and a still smaller pit does not exist in the interior.

[0030] When blanket dirt invaded into the ink layer when the amount of [ of a non-streak section grain ] comparatively acute angle height contacted an inking roller, ink is made to adhere at the acute angle nose of cam of a salient when separating from an inking roller, and a blanket is subsequently contacted, the ink can move to a blanket side and can think that it is the phenomenon which ink deposits on the blanket by repeating this.

[0031] It was proved only to the irregularity in several micrometer order that it is the sharpness of the salient in this case that it is related also to the irregularity of sub mum. Although the split-face-ized method is not specified, if it attaches in the shape of high density, and the shallow small pits with which the small pit of the formed split-face-ized configuration filled the above-mentioned conditions are put together and they are formed, a pit edge is an obtuse angle, when an inking roller is contacted, it does not invade into an ink layer and ink cannot adhere at the nose of cam of a pit edge easily. Blanket dirt is remarkably improved by this. When the depth of a small pit and the ratio of the diameter of opening are larger than 0.2, it is the direction where a pit edge becomes an acute angle, and the effect of a blanket dirt improvement is lost.

[0032] Moreover, it becomes the capacity of a small shallow pit is small and possible to cover the whole front face with few amount of water, and even if it wrings water, it is hard coming to become dirty. The stable printing conditions which do not become dirty after adjustment of water ink balance has wrung water in printing which used the bad form of difficult absorptivity especially can secure easily, and a printability's improve remarkably. If the diameter of average opening of a small pit becomes larger than 0.8 micrometers, pit capacity is a direction which becomes large, amount of water required to cover the whole front face will also increase, and the improvement effect of the difficulty of becoming dirty at the time of wringing water will become small. Moreover, when smaller than 0.2 micrometers, pit capacity becomes small too much and the effective water screen cannot be held, but it becomes easy to become dirty.

[0033] In addition to a small pit configuration, the dot gain which comes out especially with high definition improves by specifying the configuration of a large pit as mentioned above. A split face is with precise and uniform structure and a bird clapper moderately, formation of a detailed dot is stabilized by this and it originates in a configuration gathering. When the diameter of average opening becomes larger than 6 micrometers, the phenomenon of the configuration of a detailed dot deforming along with a pit profile may arise, and dot gain may deteriorate as a result. Moreover, when the diameter of average opening becomes smaller than 3 micrometers, the pit capacity as a large pit may become small too much, it may appear as a fall of water capacity, and dot gain may deteriorate too.

[0034] Or it after [ degreasing ]-electrolysis-izes [ split-face-]. moreover, the above-mentioned base material -- aluminum or its alloy board web -- the formation of a mechanical split face -- In the method of performing surface dissolution processing (1) with alkali, and neutralizing from an acid, forming an electrolysis split face in the acid electrolytic solution, performing surface dissolution processing (2) with alkali further, and neutralizing from an acid This acid electrolytic solution can manufacture the amount of surface dissolutions in alkali surface dissolution processing (1) including a hydrochloric acid and an acetic acid also by the manufacture method which makes the amount of surface dissolutions in 3.0 - 10.0 g/m<sup>2</sup> and alkali surface dissolution processing (2) 0.6 - 3.0 g/m<sup>2</sup>.

[0035] Although the split-face-ized method is not specified as the first split-face-izing, it is required in order that performing split-face-ization may make good dot gain which comes out with high definition so that the period of boom hoisting may be set to 3-6 micrometers. Subsequently, it considers as the structure in which the acute angle configuration formed by the first split-face-ization was dissolved, and the large pit crowded with dissolving a front face two times 3.0 to 10.0 g/m as alkali surface dissolution processing (1). If there are few amounts of

dissolutions than 3.0 g/m<sup>2</sup>, an acute angle configuration will remain and it will have a bad influence on blanket dirt. If [ than 10.0 g/m<sup>2</sup> ] more, in smoothing formed granularity too much and print durability's declining, it is inefficient on manufacture.

[0036] Next, by performing electrolysis split-face-ization using an alternating current in the electrolytic solution containing a hydrochloric acid and an acetic acid, it superimposes on a large pit and a small pit is formed in the shape of high density. Subsequently, the amount of surface dissolutions in the alkali surface dissolution processing (2) performed is 0.6 ~ 3.0 g/m<sup>2</sup>.

[0037] Thereby, a small pit configuration is controlled that the diameters of average opening are 0.2 micrometers or more and 0.8 micrometers or less, and the ratio of the depth and the diameter of opening is 0.2 or less. When than 0.6 g/m<sup>2</sup>, and the diameter of opening became smaller than 0.2 micrometers, and it becomes [ a front face becomes smooth, so that it became larger than 0.8 micrometers or the pit edge of a small pit became indefinite, when / than 3.0 g/m<sup>2</sup> / more, and ] impossible to have held water and water is wrung, it becomes easy to become dirty.

[0038] Moreover, when the electrolytic solution does not contain an acetic acid only with a hydrochloric acid, the improvement effect of the dirt at the time of wringing blanket dirt and water is smaller than the case where the ratio of the depth to the diameter of opening of a small pit becomes large, and cannot control by alkali dissolution processing that the diameters of average opening are 0.2 micrometers or more and 0.8 micrometers or less, and the ratio of the depth and the diameter of opening is 0.2 or less, but an acetic acid is included.

[0039] Furthermore, the above-mentioned base material carries out dissolution processing of the front face for aluminum or its alloy board web with alkali. In the method of neutralizing from an acid, and split-face-izing electrochemically in the acid electrolytic solution, carrying out 0.6~3.0 g/m<sup>2</sup> dissolution processing of the front face with alkali further, and neutralizing from an acid Or electrolysis processing is carried out. this acid electrolytic solution -- a hydrochloric acid and an acetic acid -- containing -- the formation of an electrochemical split face -- all -- or [ that it is in process and advance of a portion with a quick advance of electrolysis processing and electrolysis processing is slow ] -- so that the stopping portion may recognize multiple-times existence by turns And quantity of electricity of electrolysis processing at partial 1 process that advance of electrolysis processing is quick can manufacture on an average also by the manufacture method of the base material which is two or less 100 C/dm.

[0040] or [ that advance of electrolysis processing is slow in this case ] -- or it is desirable that the time which the stopping portion takes is 0.6 seconds or more and 5 seconds or less

[0041] or [ that advance of a portion with a quick advance of electrolysis processing and electrolysis processing is slow ] -- or it is made for the stopping portion to recognize multiple-times existence by turns -- being alike -- for example, in the electrolyzer of continuous system as shown in drawing 1 , it can carry out by arranging arrangement of an electrode sparsely and carrying out it like drawing 2 In drawing 1 , 1 is a cell and the electrolytic solution 7 is filled by this. The aluminum containing alloy board web 6 supported with the support rolls 2, 3, 4, and 5 is conveyed on right-hand side from the left-hand side of drawing in the inside of this liquid. The current from AC power supply flows between electrode a-x and an aluminum containing alloy board web in the meantime.

[0042] or [ that the portion with a quick advance of electrolysis processing points out the web portion which is carrying out the right pair to the electrode, and its advance of electrolysis processing is slow here ] -- or the stopping portion points out the web portion in which the electrode does not exist Although there is also no part where the leakage current from a nearby electrode flows and electrolysis processing does not necessarily stop in the whole portion even if it is the web portion in which the electrode does not exist, it is that quantity of electricity of electrolysis processing at partial 1 process that advance of electrolysis processing is quick considers as two or less 100 C/dm on an average, and a uniform grain is obtained.

[0043] Moreover, current can also be substantially intercepted by contacting rolls 8-13 into the portion which does not have an electrode like drawing 3 etc. Even if it takes the method that a cell is formed by the number of times of processing, and electrolysis processing is stopped in the passage portion between the cell by the other methods, quantity of electricity of electrolysis



processing at one process cannot be overemphasized by that two or less 100 C/dm, then the same effect are acquired on an average. Generation of a big and rough pit is suppressed by this method, the path of a large pit becomes almost fixed, and a uniform split face is obtained. When the electrolytic solution which mainly contains a hydrochloric acid is used especially for the effect of this method, it is remarkable. or [ that advance of electrolysis processing is slow ] -- or although, as for generation of a big and rough pit, the time which the stopping portion takes is suppressed a little in 0.5 or less seconds, sufficient division treatment effect is not obtained By considering as 0.6 seconds or more, the split face the amount of [ to which the diameter of average opening of a large pit originates in the maldistribution of a set and a large pit uniformly by 3-6 micrometers ] flat part is not can be obtained. although the same effect can be acquired even if it lengthens this time, since production aptitude falls remarkably in a stop time longer than 5 seconds, considering as 5 or less seconds is desirable

[0044] In invention concerning claims 1-8, by using the electrolytic solution containing a hydrochloric acid and an acetic acid, it can superimpose on a large pit simultaneously with formation of the above-mentioned large pit, and the small pit of the letter of high density can be formed. Control of a small pit configuration is the same as that of the content explained above. moreover, the thing for which the current density of an electrolysis power supply will be changed to time if it is electrolysis processing of a batch type -- all electrolysis -- or [ that it is in process and advance of a portion with a quick advance of electrolysis processing and electrolysis processing is slow ] -- or even if it is made for the stopping portion to recognize multiple-times existence by turns, generation of a big and rough pit is suppressed and a uniform split face is obtained because quantity of electricity of electrolysis processing at one process considers as two or less 100 C/dm on an average or [ that advance of electrolysis processing is slow ] -- or the current density in the stopping portion is 0 - 10 A/dm<sup>2</sup>, and is 0 - 2 A/dm<sup>2</sup> preferably or [ that advance of electrolysis processing is slow ] -- or it is as [ time / to stop ] above-mentioned, and in 0.5 or less seconds, although generation of a big and rough pit is suppressed a little, sufficient division treatment effect may not be obtained By considering as 0.6 seconds or more, the split face the amount of [ to which the diameter of average opening of a large pit originates in the maldistribution of a set and a large pit uniformly by 3-6 micrometers ] flat part is not can be obtained. although the same effect can be acquired even if it lengthens this time, since production fitness falls remarkably in a stop time longer than 5 seconds, considering as 5 or less seconds is desirable

[0045] furthermore, the content of the hydrochloric acid of the acid electrolytic solution is [ the content of 7 - 15 g/l and an acetic acid of the base material of invention concerning claims 1-8 ] 10 - 40 g/l -- this -- better -- it is -- \*\* It becomes possible to be able to form the dual structure superimposed on the small pit by the electrolysis split-face-ized processing large pit by a hydrochloric acid being included seven to 15 g/l, and to form the pit where the depth is shallow to the diameter of opening by an acetic acid being included further ten to 40 g/l. If there is less hydrochloric acid than 7 g/l, even if it will divide electrolysis and will perform it, a large pit may make it big and rough. The case where a pit will not generate depending on current density or electrolytic-solution temperature if it increases more than 15 g/l arises, and the condition range on manufacture becomes narrow. If there is less acetic acid than 10 g/l, the effect which forms a shallow pit is sometimes low, even if it adds mostly rather than 40 g/l, the improvement in a substantial effect will not be found but its meaning will decrease. furthermore, the thing which, as for this invention, the acid which the amount of dissolutions in the alkali before electrolysis is 1.0 - 4.0 g/m<sup>2</sup>, and is used for the neutralization includes for a hydrochloric acid or an acetic acid in this case -- this -- better -- it is -- \*\* When there are few amounts of dissolutions than 1.0 g/m<sup>2</sup>, the uneven organization of aluminum original fabric surface may remain, and it may have a bad influence on the uniform pit generation by electrolysis. Even if it makes [ more ] it than 4.0 g/m<sup>2</sup>, on the uniform disposition in the case of dividing electrolysis and performing it, a substantial contribution is inefficient not few. Moreover, by performing neutralization after alkali dissolution processing by the same composition as the electrolytic solution of the electrolysis processing which is the following process, electrolytic-solution composition is stabilized and a split-face configuration is also stabilized.

[0046] The base material of invention concerning claims 1-8 can be obtained by performing processing which forms an outline spherical-surface-like salient further, after forming the small pit superimposed on the large pit whose boom hoisting or diameter of average opening whose average wavelength is 3-30 micrometers is 3-30 micrometers by the aforementioned manufacture method in the shape of [ whose diameter of average opening is 0.2-1.0 micrometers ] high density. Moreover, the base material of invention concerning claims 9-14 can be obtained by performing processing which forms an outline spherical-surface-like salient.

[0047] Although especially the formation method of an outline spherical-surface-like salient is not limited, it can form the sol-gel reaction mixture containing the metallic-oxide particle by applying to the front face after pit formation. Sol-gel reaction mixture pastes up firmly the metallic-oxide particle which forms and contains the layer of a metallic oxide by hydrolysis and carrying out a polymerization using a catalyst in the organic solvent which contains water for an organometallic compound or inorganic metallic compounds on a base-material front face, and forms a spherical-surface-like salient.

[0048] As an oxide particle, an alumina, titanium oxide, a zirconium oxide, a silica, etc. can be used, and, as for a particle diameter, it is desirable that it is 0.01-0.5 micrometers on an average.

[0049] It is independent, or two or more sorts can use the metal alkoxide shown in JP,6-35174,A as the organometallic compound and the inorganic metallic compounds which are used for sol-gel reaction mixture, metal acetylacetonate, metal acetate, a metal oxalate, a metal nitrate, a metal sulfate, a metal carbonate, a metal oxysalt ghost, a metal chloride, and the condensate that carried out partial hydrolysis of these and oligomerized them, mixing.

[0050] Especially in these, a metal alkoxide is desirable and especially the alkoxy compound of silicon is desirable. Moreover, you may use together a silane coupling agent as shown in JP,6-35174,A. As a catalyst, the acid or alkali shown in JP,6-35174,A can be used. The addition of a catalyst has 0.05 - 5 desirable % of the weight to the total quantity of an organometallic compound or inorganic metallic compounds. The addition of water has the desirable range of the amount of 0.5 to 20 times to the number of mols required to understand completely the total quantity of an organometallic compound or inorganic metallic compounds an added water part. It is desirable to use ketones, such as lower alcohols, such as a methanol, ethanol, propanol, and a butanol, or an acetone, a methyl ethyl ketone, and a diethyl ketone, as an organic solvent. After an organic solvent adds the amount for which it was suitable in order for sol-gel reaction mixture to carry out reaction advance and advances a reaction, it is desirable to add the amount suitable for the application again. In sol-gel reaction mixture, you may add the other compounds shown in JP,6-35174,A.

[0051] The base material which consists of a pure aluminium and an aluminium alloy is contained in the aluminum base material used for this invention about a base material. Various things can be used as an aluminium alloy, for example, metals, such as silicon, copper, manganese, magnesium, chromium, zinc, lead, a bismuth, nickel, titanium, sodium, and iron, and the alloy of aluminum are used. In order to remove the rolling oil on the front face of aluminum in advance of split-face-izing, as for an aluminum base material, it is desirable to perform degreasing processing. The emulsion cleaning processing using emulsions, such as degreasing processing and KESHIRON using solvents, such as a trichlene and thinner, as degreasing processing, and triethanol, etc. is used. Moreover, the solution of alkali, such as caustic alkali of sodium, can also be used for degreasing processing. When alkali solution, such as caustic alkali of sodium, is used for degreasing processing, dirt and an oxide film unremovable only by the above-mentioned degreasing processing can also be removed. When alkali solution, such as caustic alkali of sodium, is used for degreasing processing, it is desirable for it to be immersed in acids, such as phosphoric acid, a nitric acid, a hydrochloric acid, a sulfuric acid, and a chromic acid, or those mixed acids, and to perform neutralization processing. When carrying out electrochemical split-face-ization to the degree of neutralization processing, especially the thing for which the acid used for neutralization is aligned with the acid used for electrochemical split-face-ization is desirable.

[0052] Although electrolysis split-face-ization by the method of this invention is performed as

split-face-izing of a base material, you may perform split-face-ization which constructed suitably the formation of a chemical split face and the formation of a mechanical split face of a moderate throughput, and united them as the pretreatment. Chemical split-face-ization uses the solution of alkali, such as caustic alkali of sodium, like degreasing processing. It is desirable for it to be immersed in acids, such as phosphoric acid, a nitric acid, a hydrochloric acid, a sulfuric acid, and a chromic acid, or those mixed acids after processing, and to perform neutralization processing.

[0053] When carrying out electrochemical split-face-ization to the degree of neutralization processing, especially the thing for which the acid used for neutralization is aligned with the acid used for electrochemical split-face-ization is desirable. Although especially a mechanical split-face-ized method is not limited, brushing and its honing polish are desirable. In brushing, the cylinder-like brush which transplanted hair, for example in brush hair with a hair diameter of 0.2-1mm is rotated, supplying the slurry which made the contact surface distribute abrasives in water, it pushes against a support surface and split-face-ization is performed. In honing polish, from a nozzle, put a pressure, inject the slurry which made water distribute abrasives, it is made to collide with a support surface from across, and split-face-ization is performed. as abrasives, things generally used for polish, such as volcanic ash, an alumina, and a silicon carbide, raise -- having -- the grain size -- #200-#2000 -- it is #400-#800 preferably

[0054] As for the base material split-face-ized mechanically, it is desirable for it to be immersed in the solution of an acid or alkali, and to \*\*\*\*\* a front face for removing an abrasive material, aluminum waste, etc. which ate away on the surface of the base material, or controlling a pit configuration etc. As an acid, a sulfuric acid, a persulfuric acid, fluoric acid, phosphoric acid, a nitric acid, a hydrochloric acid, etc. are contained, for example, and a sodium hydroxide, a potassium hydroxide, etc. are contained as a base, for example. It is desirable to use the solution of alkali also in these. When describing immersing processing above in the solution of alkali, it is desirable for it to be immersed in acids, such as phosphoric acid, a nitric acid, a sulfuric acid, and a chromic acid, or those mixed acids, and to perform neutralization processing. Especially the thing for which the acid used for neutralization is aligned with the acid used for electrochemical split-face-ization when carrying out electrochemical split-face-ization to the degree of neutralization processing is desirable, and when carrying out anodizing to the degree of neutralization processing, especially the thing for which the acid used for neutralization is aligned with the acid used for anodizing is desirable.

[0055] Generally electrochemical split-face-ization performs split-face-ization using alternating current in the acid electrolytic solution. The electrolytic solution containing a hydrochloric acid and an acetic acid is used for electrolysis processing by this invention. It is desirable that the content of a hydrochloric acid is [ the content of 7 - 15 g/l and an acetic acid ] especially 10 - 40 g/l. Although various waves, such as a square wave, a trapezoidal wave, and a sawtooth wave, can be used for the power supply wave used for electrolysis, especially its sine wave is desirable.

[0056] As for the voltage impressed in the formation of an electrochemical split face, 1-50V are desirable, and 5-30V are still more desirable. 10 - 200 A/dm<sup>2</sup> of current density (peak value) is desirable, and its 20 - 150 A/dm<sup>2</sup> is still more desirable. Quantity of electricity totals all down stream processing, its 100 - 2000 C/dm<sup>2</sup> is desirable, and its 200 - 1000 C/dm<sup>2</sup> is still more desirable. 10-50 degrees C of temperature are desirable, and its 15-45 degrees C are still more desirable. A nitrate, a chloride, amines, aldehydes, phosphoric acid, a chromic acid, a boric acid, oxalic acid, etc. can be further added to the electrolytic solution if needed. As for the base material split-face-ized electrochemically, it is desirable for it to be immersed in the solution of an acid or alkali, and to \*\*\*\*\* a front face for removing a surface smut etc. or controlling a pit configuration etc. As an acid, a sulfuric acid, a persulfuric acid, fluoric acid, phosphoric acid, a nitric acid, a hydrochloric acid, etc. are contained, for example, and a sodium hydroxide, a potassium hydroxide, etc. are contained as a base, for example. It is desirable to use the solution of alkali also in these. When describing immersing processing above in the solution of alkali, it is desirable for it to be immersed in acids, such as phosphoric acid, a nitric acid, a sulfuric acid, and a chromic acid, or those mixed acids, and to perform neutralization processing. When carrying

out anodizing to the degree of neutralization processing, especially the thing for which the acid used for neutralization is aligned with the acid used for anodizing is desirable.

[0057] Next it is split-face-ized processing, anodizing is performed, then sealing and hydrophilicity-ized processing are performed. There is especially no limit in the method of anodizing used by this invention, and a well-known method can be used. On a base material, an oxide film is formed of anodizing. Although the method of electrolyzing by current density 1 - 10 A/dm<sup>2</sup> by making into the electrolytic solution the solution which contains a sulfuric acid, phosphoric acid, etc. by 10 - 50% of concentration is preferably used for anodizing in this invention, the method of electrolyzing with high current density in the sulfuric acid otherwise indicated by the U.S. Pat. No. 1,412,768 specification, the method of electrolyzing using the phosphoric acid indicated by the U.S. Pat. No. 3,511,661 specification, etc. can be used.

[0058] The base material by which anodizing was carried out may perform sealing if needed. These sealing can be performed using well-known methods, such as hot water processing, boiling-water processing, steam treatment, silicate-of-soda processing, dichromate solution processing, nitrite processing, and ammonium-acetate processing.

[0059] It is desirable to prepare a hydrophilic layer in a base material further. The high molecular compound which contains in formation of a hydrophilic layer amino acid given in alkali-metal silicate given in a U.S. Pat. No. 3,181,461 specification, a hydrophilic cellulose given in a U.S. Pat. No. 1,860,426 specification, JP,60-149491,A, and JP,63-165183,A and its salt, the amines that have the hydroxyl group of a publication in JP,60-232998,A and its salt, phosphate given in JP,62-19494,A, and the monomeric unit that has the sulfonic group of a publication in JP,59-101651,A can be used.

[0060] Subsequently to after hydrophilicity-ized processing, a photosensitive layer is applied. In dry weight, 0.8 - 1.8 g/m<sup>2</sup> is desirable still more desirable, and the amount of photosensitive-layer painting is 1.2 - 1.6 g/m<sup>2</sup>. A mat agent can be given if needed. Furthermore, in order to rub and to prevent a blemish, and in order [ to the photosensitive layer when piling up the photosensitive lithography version ] to prevent elution of the aluminum component to the inside of a developer at the time of development, processing which prepares a protective layer in the base material rear face indicated by each official report of JP,50-151136,A, JP,57-63293,A, JP,60-73538,A, JP,61-67863,A, and JP,6-35174,A etc. can be performed.

[0061] In invention concerning claims 1-14, be [ what is necessary / just although especially the photosensitive layer of the photosensitive lithography version is not limited but it is used as a photosensitive layer of the photosensitive lithography version ], it is desirable that it is a photosensitive layer containing a quinone diazide compound.

[0062] Claims 1-4 and the developer of invention concerning 9-11 are developers containing 0.1 mols or more of at least one sort of compounds chosen from a saccharide, oximes, phenols, and fluoridation alcohols.

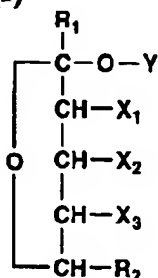
[0063] The above-mentioned compound is desirable and an account saccharide is a compound by which the following general formula (I) or (II), and oximes are expressed with the following general formula (III) for the following general formula (IV) and fluoridation alcohols, and phenols are expressed with the following general formula (V).

[0064] The saccharide expressed with a general formula (I) or (II) is shown below.

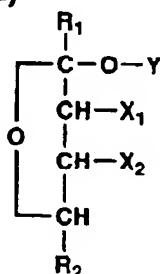
[0065]

[Formula 1]

一般式(I)



一般式(II)



[0066] In a general formula (I) or (II), X1, X2, and X3 express a hydrogen atom, a hydroxyl group, the amino group, a halogen atom, an acyloxy machine, an alkoxy group, the acylamino machine, or a phosphoryl oxy-basis respectively. R1 and R2 express a hydrogen atom, an alkyl group (for example, methyl group), substitution alkyl groups (for example, a hydroxymethyl group, 1, 2-dihydroxyethyl machine, an acetoxy methyl group, a benzoyl oxymethyl machine, methoxymethyl, benzyloxymethyl, etc.), or a carboxyl group respectively. Y expresses a hydrogen atom, an acyl group, an alkoxy carbonyl group, a carbamoyl group, or an alkyl group. the case where the substituent furthermore expressed by X1, X2, X3, R1, and R2 row by Y is a hydroxyl group or a hydroxyl-group content machine -- the ether linkage formation between any two hydroxyl groups -- or carbonyl compounds, such as an acetone and a benzaldehyde, may be added further and 5 members or 6 member rings may be formed by acetalization Y of a general formula (I) or (II) may form the small saccharide which consists of n units of (I) or (II) completed by forming guru KOKISHIDO combination of a hydroxyl group and an individual (n-1) expressed by X1, X2, X3 and R1 of (I) of further others, or (II), and R2 row by Y. n expresses the integers from 2 to 6 here.

[0067] A hydrogen atom or a hydroxyl group is desirable as X1, X2, and X3, and it is a hydroxyl group still more preferably. A thing desirable as R1 and R2 is hydrogen atom, hydroxymethyl group, 1, and 2-dihydroxyethyl machine or a carboxyl group, and is hydrogen atom, hydroxymethyl group or 1, and 2-dihydroxyethyl machine still more preferably. A thing desirable as Y is a hydrogen atom.

[0068] The following compound can be mentioned as an example of a saccharide expressed with a general formula (I) or (II).

[0069] I-1 D-ERISE sirloin (D-Erythrose) \*I-2 D-threose (D-Threose) \*I-3 D-arabinose (D-Arabinose)

I-4 D-ribose (D-Ribose)

I-5 D-xylose (D-Xylose)

I-6 D-erythro-PENTHEYU sirloin (D-Erythro-Pentulose) \*I-7 D-allulose (D-Allose)

I-8 D-galactose (D-Galactose)

I-9 D-glucose (D-Glucose)

I-10 D-mannose (D-Mannose)

I-11 D-talose (D-Talose)

I-12 Beta-D-fructose (beta-D-Fructose)

I-13 Alpha-L-sorbose (alpha-L-Sorbose)

I-14 6-deoxy-D-glucose (6-deoxy-D-Glucose)

I-15 D-glycero-D-GARAKUTO-heptose (D-glycero-D-galacto-Heptose)

I-16 Alpha-D-ARURO-HEPUCHU sirloin (alpha-D-allo-Heptulose)

I-17 Beta-D-altro-3-HEPUCHU sirloin (beta-D-altro-3-Heptulose)

I-18 Saccharose (Sucrose)

I-19 Lactose (Lactose)

I-20 D-maltose (D-Maltose)

I-21 Isomaltose (Isomaltose)

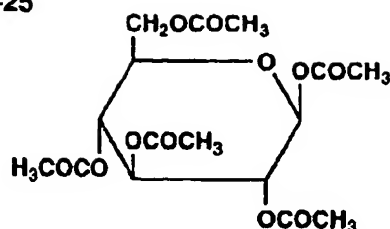
I-22 INURO biose (Inulobiose) \*I-23 HIARUBI Orlon (Hyalbiouronic acid)

I-24 Maltotriose (Maltotriose)

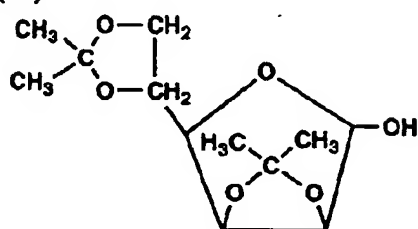
[0070]

[Formula 2]

I-25



I-26 (\*)

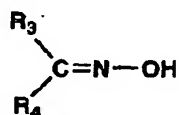


[0071] \* The attached compound belongs to a general formula (II). Most of these compounds are marketed and are easily available. What is not marketed is the 3rd volume of large organic chemistry, the (1) "aliphatic-compound II" Kotake best male editorial supervision, Asakura Publishing Co., Ltd., the 1957 issue, or (2) "The Carbonhydrates, Chemistry and Biochemistry" 2nd. Ed IA (1972) and IIA (1970) and W, Pibgman and D.Horton editorial supervision, Academic It is easily compoundable if Press is referred to. The oximes expressed with a general formula (III) are as follows.

[0072]

[Formula 3]

一般式(III)



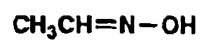
[0073] R3 and R4 express a hydrogen atom, an alkyl group (you may have a substituent), an aryl group (you may have a substituent), an acyl group, or a heterocycle. R3 and R4 may join together mutually, and they may form the ring (especially cycloalkyl ring) of 5 or 6 members.

[0074] As an alkyl group, it is the thing of carbon numbers 1-18, and a straight chain, branching, and a cycloalkyl machine are included. As a substituent, a hydroxy group, a carboxyl group, an alkoxy group, a halogen atom, a sulfonic group, a sulfamoyl group, a carbamoyl group, a sulfonylamino machine, the acylamino machine, a cyano group, or an acyloxy machine is mentioned. As an aryl group, it is a phenyl group and a naphthyl group, and what was mentioned as a substituent of an alkyl group as a substituent is mentioned. As a heterocycle, a thiazole, an oxazole, an imidazole, a triazole, a tetrazole, thiadiazole, an OKISA diazole, a tetrahydrofuran, a morpholine, a pyridine, a piperidine, a benzothiazole, a benzo oxazole, or the benzimidazole is mentioned. There are the following as an example of the compound shown by the general formula (III).

[0075]

[Formula 4]

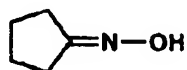
III-1



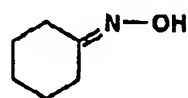
III-2



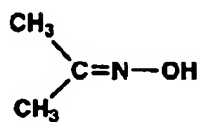
III-3



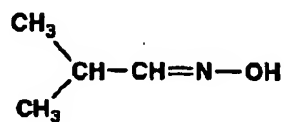
III-4



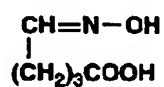
III-5



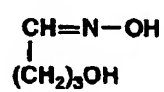
III-6



III-7



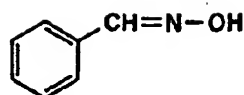
III-8



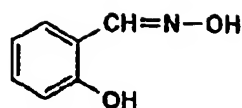
[0076]

[Formula 5]

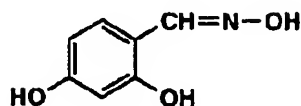
III-9



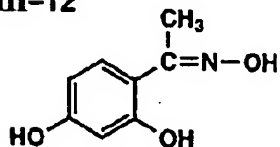
III-10



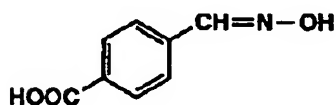
III-11



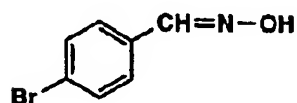
III-12



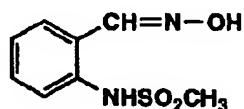
III-13



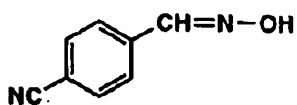
III-14



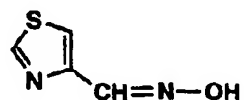
III-15



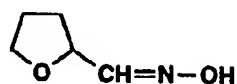
III-16



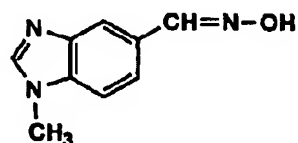
III-17



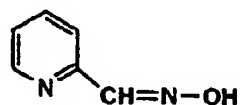
III-18



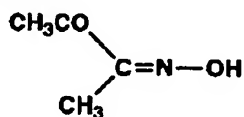
III-19



III-20



III-21



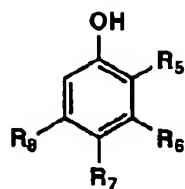
[0077] these compounds -- as commercial elegance -- or -- Organic Functional Group Preparations [ ] -- the 3rd -- volume"Page 365 Ed. by S.R.Sandler and It can receive easily by compounding by the method indicated by W.Karo and AcademicPress (1972). Next, the phenols of a general formula (IV) are explained.

[0078]

[Formula 6]



## 一般式(IV)

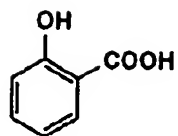


[0079] or [ that R5, R6, R7 and R8 are the same here ] -- or it differs and a hydrogen atom, the amino group, a carboxylic-acid machine, a sulfonic group, the alkyl group (you may have the substituent) of carbon numbers 1-4, and an alkoxy group (you may have the substituent) are expressed As a substituent, the same thing as the alkyl group of R3 and R4 of a general formula (III) or the substituent of an aryl group is mentioned. There are the following as an example of the compound shown by the general formula (IV).

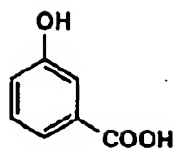
[0080]

[Formula 7]

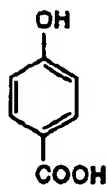
IV-1



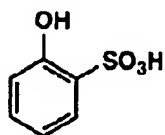
IV-2



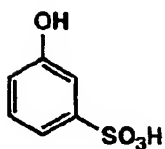
IV-3



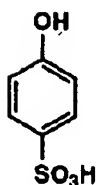
IV-4



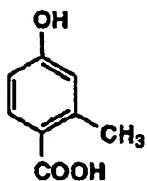
IV-5



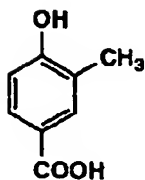
IV-6



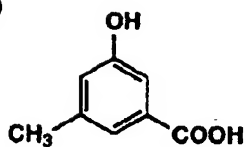
IV-7



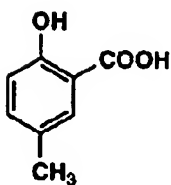
IV-8



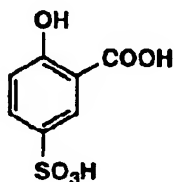
IV-9



IV-10



IV-11

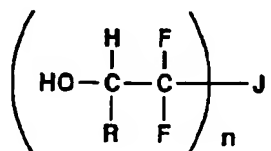


[0081] Many of these compounds are marketed, other compounds can be well-known and it can compound them easily. Next, the fluoridation alcohol of a general formula (V) is explained.

[0082]

[Formula 8]

一般式(V)



[0083] R among a formula The cycloalkyl machine which is not replaced [ the alkyl group which is not replaced / a hydrogen atom, substitution, or /, substitution, or ], Express the aryl group which is not replaced [ substitution or ] and; n expresses 1 or 2, and when n is 1, J A hydrogen atom, The cycloalkyl machine which is not replaced [ the alkyl group which is not replaced / a fluorine atom, substitution, or /, substitution or ], The aralkyl machine which is not replaced [ the aryl group which is not replaced / substitution or /, substitution, or ] is expressed, and when n is 2, the aralkylene group which is not replaced [ the arylene machine which is not replaced / the cyclo alkylene machine which is not replaced / the alkylene machine which is not replaced / substitution or /, substitution, or /, substitution, or /, substitution, or ] is expressed.

[0084] Among the compounds expressed with a general formula (V), in a desirable thing, R expresses a hydrogen atom or a fluorine substitution alkyl, n expresses 1 or 2, and J expresses a hydrogen atom and the alkyl group of fluorine atom substitution, when n is 1, and when n is 2, it expresses a fluorine substitution alkylene machine. It is desirable at the point that that whose carbon atomic number is six or less per hydrophilic radical, such as a hydroxyl group, a carboxylic-acid machine, and a sulfonic group, among these desirable compounds has sufficient solubility to processing liquid. The example of a compound expressed with a general formula (V) is shown below.

[0085]

[Formula 9]

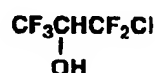
V-1



V-2



V-3



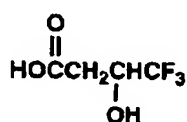
V-4



V-5



V-6



V-7



V-8



[0086] Many of these compounds are marketed, other compounds can be well-known and it can compound them easily.

[0087] General formula (I) A thing desirable also in the compound of - (V) A general formula (I) or the saccharide of (II), They are the phenols of a general formula (IV), among the phenols of a general formula (IV) still more preferably Dissociation machines other than a phenolic hydroxyl group it is the phenols (which for example, have a carboxylic-acid machine, one or more sorts of sulfonic groups, etc.), and excelled most -- what has an effect is the carboxylic-acid machine of the phenols of a general formula (IV), the sulfosalicylic acid which has sulfonic group both, and a salicylic acid which has a carboxylic-acid machine

[0088] Claims 1-4 and the developer of invention concerning 9-11 can contain the matter well-known as a component of a developer other than the above-mentioned compound according to the kind of photosensitive layer of the photosensitive lithography versions, such as alkali chemicals, such as a potassium hydroxide, a sodium hydroxide, potassium carbonate, and a sodium carbonate, a surfactant, an organic solvent, an organic carboxylic acid, a defoaming

agent, and a water softener.

[0089] In claims 1-4 and invention concerning 9-11, there is no limit about conditions other than a developer (picture exposure, rinsing, a rinse, desensitization, etc.), and the technology usually used including well-known technology can be applied.

[0090] In claims 5-8 and invention concerning 12-14, there is no limit in processing of the photosensitive lithography version, and the technology usually used including well-known technology can be applied.

[0091] It considers as the solvent made to dissolve or swell the picture section, for example, lactone, ether, ketones, alcohols, etc. are preferably used for claims 5-8 and the elimination liquid of invention concerning 12-14. As the above-mentioned lactone, a butyrolactone, a valerolactone, hexano lactone, etc. are mentioned and glycol ethers are mentioned as the above-mentioned ether. For example, a 2-methoxyethanol, 2-ethoxyethanol, 2-isopropoxy ethanol, Glycol monoalkyl ether, such as glycol monoalkyl ether, for example, 2-phenyl ethanol etc., such as 2-butyl glycol For example, the diethylene-glycol monomethyl ether, a diethylene glycol monoethyl ether, A diethylene-glycol monochrome isopropyl ether, the diethylene-glycol monobutyl ether, Diethylene-glycol monoalkyl ether, such as the diethylene-glycol monochrome isobutyl ether For example, the triethylene-glycol monomethyl ether, the triethylene-glycol monoethyl ether, Triethylene-glycol monoalkyl ether, such as the triethylene-glycol monobutyl ether For example, ethylene glycol dialkyl ether, such as an ethylene glycol wood ether For example, diethylene-glycol dialkyl ether, such as diethylene-glycol diethylether, such as a diethylene-glycol wood ether and diethylene-glycol diethylether, etc. is contained. As ketones, a methyl ethyl ketone, a methyl propyl ketone, a diethyl ketone, a methyl butyl ketone, a methyl isobutyl ketone, an ethyl butyl ketone, a butyrone, a methyl amyl ketone, a methyl hexyl ketone, valerone, a mesityl oxide, diacetone alcohol, a cyclohexanone, a methylcyclohexanone, an acetophenone, an isophorone, an acetylacetone, an acetonylacetone, etc. are mentioned, for example. As alcohols, a methanol, ethanol, a butanol, octyl alcohol, benzyl alcohol, etc. are mentioned, for example. N.N-dimethylformamide, a tetrahydrofuran, a dioxane, N-methyl pyrrolidone, dimethyl sulfoxide, etc. can be used other than these.

[0092] the various above-mentioned picture dissolutions and a swelling agent are independent -- or two or more sorts can be used, combining It is suitable for the above-mentioned solvent to make it contain in 30 - 85% of the weight of the range more preferably 20 to 90% of the weight to elimination liquid AUW.

[0093] Elimination liquid can be made to contain a surfactant if needed. The surfactant is effective in order to promote that each component contained in the white-out of this invention permeates the picture section of the lithography version more at fitness, to mix each component further contained in white-out good and to enable it to form a stable solution. As this surfactant polyoxyethylene alkyl ether Polyoxyethylene alkyl phenyl ether, a polyoxyethylene poly styryl phenyl ether, Polyoxyethylene polyoxypropylene alkyl ether and glycerol fatty-acid partial ester Sorbitan fatty-acid partial ester and PENTA ERIS toll fatty-acid partial ester Propylene-glycol monochrome fatty acid ester, cane-sugar fatty-acid partial ester, An oxyethylene oxypropylene block copolymer and polyoxyethylene sorbitan fatty-acid partial ester Polyoxyethylene sorbitol fatty-acid partial ester and polyethylene glycol fatty acid ester Polyglycerin fatty-acid partial ester and polyoxyethylene-ized castor oil Polyoxyethylene glycerol fatty-acid partial ester and fatty-acid diethanolamide N and N-screw-2-hydroxy alkylamines, polyoxyethylene alkylamine, Nonionic surfactants, such as triethanolamine fatty acid ester and a trialkyl amine oxide, Fatty-acid salts, loon chain acid chloride, and hydroxy alkane sulfonates Alkane sulfonates, dialkyl sulfo amber acid ester salts, Straight chain alkylbenzene sulfonates and branched chain alkylbenzene sulfonates Alkyl naphthalenesulfonate and alkyl phenoxy polyoxyethylene PUROPIRUSURUHON acid chloride Polyoxyethylene alkyl sulfo phenyl-ether salts and N-methyl-N-oleyl taurine sodium N-alkyl sulfo amber acid monoamide disodium salts and petroleum sulfonates Sulfation castor oil, sulfation nest's foot oil, the sulfate salts of aliphatic alkylester, Alkyl-sulfuric-acid ester salts, polyoxyethylene-alkyl-ether sulfate salts, Fatty-acid monoglyceride sulfate salts, polyoxyethylene-alkyl-phenyl-ether sulfate salts, Polyoxyethylene styryl phenyl-ether sulfate salts, alkyl phosphoric ester salts, Polyoxyethylene-alkyl-ether phosphoric ester salts,

polyoxyethylene-alkyl-phenyl-ether phosphoric ester salts, The partial saponification objects of a styrene-maleic-anhydride copolymerization object, and the partial saponification objects of an olefin-maleic-anhydride copolymerization object Anionic surfactants, such as naphthalene sulfonate formalin condensates, Alkylamine salts, quarternary ammonium salt, polyoxyethylene alkylamine salts, Amphoteric surface active agents, such as cation nature surfactants, such as a polyethylene polyamine derivative, carboxy betaines, amino carboxylic acids, sulfobetaine, amino sulfates, and imidazoline, are mentioned. A polyoxyethylene and a certain thing can also be read as polyoxyalkylene, such as a polyoxymethylene, polyoxypropylene, and a polyoxy butylene, in the surfactant mentioned above. Since each component contained in white-out is mixed good, nine or more surfactants have [ among these ] HLB more desirable [ a nonionic surface active agent and an anionic surfactant are desirable, and ]. Furthermore, they are desirable in order for polyoxyethylene alkyl phenyl ether, an oxyethylene oxypropylene block copolymer, polyoxyethylene sorbitan fatty-acid partial ester, polyoxyethylene sorbitol fatty-acid partial ester, polyethylene glycol fatty acid ester, and polyglycerin fatty-acid partial ester to make picture section quenching of white-out good. The most desirable thing is an oxyethylene oxypropylene block copolymer.

[0094] Even if independent, two or more sorts may be mixed, and these surfactants are made to contain in 3 - 25% of the weight of the range more preferably one to 40% of the weight to the AUW of elimination liquid.

[0095] Elimination liquid can contain a coloring agent, the acid, water, a viscosity modifier, etc. other than the aforementioned component.

[0096] When a coloring agent desires contrast visually, it can be made to contain, and specifically, it has inorganic pigments including colors, such as a Crystal Violet, a safranin, Brilliant Blue, a Malachite Green, and acid Rhodamine B, an organic pigment, etc. These coloring agents are preferably used in 0.001 - 0.01% of the weight of the range 0.0001 to 0.05% of the weight to the AUW of the white-out concerning this invention.

[0097] As acid, organic acids, those salts, etc., such as inorganic acids, such as fluoric acid, a hydrochloric acid, a sulfuric acid, a persulfuric acid, a nitric acid, a permanganic acid, a phosphoric acid, a borofluoric-acid acid, and a \*\* hydrofluoric acid, an acetic acid, citric acid, an apple acid, a lactic acid, oxalic acid, trichloroacetic acid, a tannic acid, a phytic acid, p-toluenesulfonic acid, and phosphonic acid, are mentioned, for example. Since fluoric acid, a phosphoric acid, borofluoric-acid acids, or those salts are improvement in the correction effect among these acid, it is desirable. these acid is independent — or you can use two or more sorts, combining, and it is made to contain in 0.3 - 8.0% of the weight of the range preferably 0.1 to 15% of the weight to the AUW of white-out

[0098] Although it contains for various components, such as an acid, and is added inevitably, you may add water on an others and selection target. A desirable addition is 3 - 20 % of the weight more preferably one to 30% of the weight to white-out AUW.

[0099] As a viscosity modifier, high molecular compounds, such as reforming celluloses, such as inorganic thickeners, for example, a methyl cellulose, such as a silicic acid impalpable powder, hydroxypropyl methylcellulose, a carboxymethyl cellulose, and Na salt, gum arabic, a polyvinyl pyrrolidone, a polyvinyl methyl ether, a polyethylene glycol, a polypropylene glycol, a vinyl methyl-ether-maleic-anhydride copolymer, and a vinyl acetate-maleic-anhydride copolymer, are mentioned, for example. Especially, a reforming cellulose, a polyvinyl pyrrolidone, and the two above-mentioned sorts of maleic-anhydride copolymers are desirable, and are a reforming cellulose and polyvinyl pyrrolidones, such as hydroxypropyl methylcellulose, most preferably. Although an addition is changeable so that two or more sorts can be mixed, it can also use and it may become the viscosity of hope even if these viscosity modifier is independent, in this invention, it is preferably used in 1 - 15% of the weight of the range still more preferably 0.5 to 25% of the weight to white-out.

[0100] When there is the picture section unnecessary for the lithography version which the development ended, the elimination liquid of this invention is applied on the picture section, and the picture section is eliminated. It is desirable to eliminate, after rinsing after development and carrying out the squeegee of this rinsing water, when giving the elimination liquid of this invention

to the picture section of the lithography version. As the concrete method of elimination, elimination liquid is included in a brush, this is applied to the picture section, about 10 seconds or after making it install for several minutes or rubbing with a brush lightly after an application, an elimination float is poured by rinsing and last method is common. Thus, printing is presented with it after the lithography version with which the picture of the unnecessary section was eliminated finishes down stream processing, such as the usual gum \*\*.

[0101]

[Example] It rinsed, after immersing the front face of an aluminum plate (jis1050, temper H16) with an example 1 <split-face-izing of base material> thickness of 0.24mm in sodium-hydroxide solution for 20 seconds 10 50-degree C% of the weight and performing degreasing processing, and the sulfuric acid neutralized 10% and it rinsed further. Subsequently, electrolytic etching processing of a sine wave alternating current in which one processing became current density 50 A/dm<sup>2</sup>, and quantity of electricity became 80 c/dm<sup>2</sup> about this aluminum plate was performed 6 times by 1% hydrochloric acid with a temperature of 30 degrees C and 2% acetic-acid mixture electrolytic solution.

[0102] After the formation of electrochemical \*\*\*\*, it \*\*\*\*\* so that it might be immersed in sodium-hydroxide solution and the temperature of 50 degrees C 1% and the amount of dissolutions might become 2.0 g/m<sup>2</sup>, and subsequently to sulfuric-acid solution and 25 degrees C, it was immersed 10%, and neutralization processing was performed. Furthermore, in 20% sulfuric-acid solution, anodizing was performed for 60 seconds on condition that the temperature of 25 degrees C, and current density 2 A/dm<sup>2</sup>, and the split-face-ized base material was obtained. The diameter of opening of 5.2 micrometers and a small pit was [ the pit depth / diameter of opening of 0.6 micrometers and a small pit of the diameter of opening of the large pit at this time ] 0.15.

[0103] <Base material after treatment> After treatment of the base material split-face-ized by the above-mentioned method was carried out by the following method.

[0104] The alumina particle was scattered to the ethyl silicate a mixed part by the following weight ratio, and mixture [A] was produced.

[0105]

- Alumina particle (mean particle diameter : 0.1 micrometers) 50 weight sections and tetraethyl silicate The 100 weight sections <production of sol-gel reaction mixture> following component was agitated, and it was made to react for about 20 minutes after starting generation of heat.

[0106]

- Mixture [A] The 150 weight sections and ion exchange water 30 weight sections and a methanol 25 weight sections and phosphoric acid The following component was added to the liquid after the 0.15 weight sections <production of after-treatment application liquid> above-mentioned reaction, and it considered as application liquid.

[0107]

- Methanol The above-mentioned application liquid was applied to the formation of a 2500 weight sections <formation of after-treatment application and spherical-surface-like salient> split face, and the base-material front face by which AD processing was carried out with the wire bar, and it dried for 2 minutes at 120 degrees C, and the weight after dryness formed the application layer of 100 mg/m<sup>2</sup>, and considered as the base material 1.

[0108] By SEM observation, it checked that the spherical-surface-like salient of 0.2 micrometers of pitch diameters was formed in an application layer front face. Moreover, it was formed in respect of being smooth between spherical-surface-like salients.

[0109] <Production of the photosensitive lithography version 1> The wire bar was used for the above-mentioned base material 1, the photosensitive constituent application liquid of the following composition was applied to it, it dried at 80 degrees C, and the photosensitive lithography version 1 was obtained. At this time, the application weight after dryness of a photosensitive constituent was 1.8 g/m<sup>2</sup>.

[0110]

[A photosensitive constituent]

The esterification reactant of 1 and 2-naphthoquinonediazide-5-sulfonyl chloride and 2, 3, and

4-trihydroxy benzophenone 0.5g phenol formaldehyde resin (weight average molecular weight : 2300) 2.0g 2-(p-butoxy phenyl)-4, 6-screw (TORIKURORU methyl)-s-triazine The 0.02g naphthoquinone -1, 2-diazo-4-sulfonic-acid chloride 0.03g Crystal Violet 0.01g oil-blue #603 (Orient chemical-industry incorporated company make) 0.015g ethylene dichloride 18g 2-methoxy ethyl acetate 12g <erasability evaluation> For the photosensitive lithography version 1 obtained by doing in this way, in a vacuum printing frame After performing exposure for 50 seconds using a 3kW metal halide lamp through the positive film with which the picture was printed from 1m distance, 30 degrees C was developed for 8 seconds with the developer of the following composition.

[0111]

[Developer 1] (pH about 12.7)

D-saccharose A 4.8-% of the weight sodium hydroxide A 0.6-% of the weight sodium carbonate 0.70-% of the weight polyoxyethylene (25 addition mols) diglyceryl ether 0.05-% of the weight water 95.0% of the weight, subsequently, elimination, rinsing, and the development ink peak (FP-2 Fuji Photo Film make) were fully performed for a part of picture after rinsing and dryness using the elimination liquid of the following composition, and the elimination state of a picture was evaluated.

[0112]

[Elimination liquid 1]

Gamma-butyrolactone 71.0 weight sections pure water 10.0 weight sections acid Rhodamine B The 0.02 weight section polyoxyethylene polyoxypropylene ether A 8.0 weight sections hydroxypropyl methyl cellulose 2.0 weight sections powder silicon dioxide 9.0 weight sections <error criterion> erasability : In the elimination work which carries out rinsing removal of the elimination liquid after applying elimination liquid to the picture section and carrying out fixed time neglect When the above-mentioned neglect time was changed by unit for 10 seconds in the range for [ for / 10 seconds / - ] 60 seconds, it measured in what second elimination of the picture section would be completed, and the following criteria estimated.

[0113] 1mm, 2mm or 3mm, and an interval are vacated from the boundary of the half-tone-dot picture section :30% in the ease of bleeding to the approaching picture section [ longer than for / less than for / A:10 seconds ] B:10 seconds / longer than for / less than for / C:20 seconds / longer than for D:30 seconds, elimination liquid is applied, after leaving it for 10 minutes, rinsing removal is carried out, and the existence of pervasion of a half-tone-dot picture

[0114] Even if it vacates A:1mm and applies The step tablet for sensitometries (No[ by Eastman Kodak Co. ]. 2 and a concentration difference every 0.15 21 steps of gray scale) is stuck to the <development nature evaluation> sample which is influential even if it vacates influence-less C:3mm interval at intervals of 2mm, although it is influential at intervals of B:1 influence-lessmm. It exposed for 30 seconds from 90cm distance by using 4kW metal halide lamp (vio Quick made from a great Japan screen stock) as the light source. In order to make evaluation easy, experimentally, 1.5 g/l addition of the potassium hydrogencarbonate was carried out at the developer, and 30 degrees C was developed for 8 seconds.

[0115] <Error criterion> After the redness of B:halftone developed satisfactory develops the photosensitive lithography version 1 which carried out strong picture exposure with [ A:] C:greasing <printing evaluation>, gum length is carried out, and with a printing machine (Mitsubishi DIYA 1 F-1), after 10000-sheet printing, printing is stopped and it is left for 24 hours. Number of sheets until it starts printing again after that, there is no adhesion of ink in the non-picture section and normal printed matter is obtained was evaluated, and the recoverability after neglect was evaluated. Print durability evaluated number of sheets until the picture section is damaged and it causes poor impression.

[0116] The elimination liquid 2 of the following composition of a developer 2 (the mole ratio of SiO<sub>2</sub>/Na<sub>2</sub>O is 5.26% solution (pH=12.7) of the specific silicate of 1.74) in elimination liquid was used for the developer using the base material 2 which does not perform after treatment after anodic oxidation to example of comparison 1 base material, and also the photosensitive lithography version was evaluated like the example 1.

[0117]

[Elimination liquid 2]

Benzyl alcohol A 13.0 weight sections cyclohexanone A 36.0 weight sections dimethylformamide A 14.0 weight sections xylene 6.0 weight sections pure water A 10.0 weight sections phosphoric acid (85%) The 1.0 weight section acid Rhodamine B 0.002 weight section polyoxyethylene polyoxypropylene ether 8.0 weight section hydroxypropyl methyl cellulose 6.0 weight sections powder silicon dioxide It used as the example 2 of 6.0 weight sections comparison, three base materials, a developer, and elimination liquid were shown in Table 1, and it experimented in the examples 2 and 3 of comparison.

[0118] The above result is shown in the following table 1.

[0119]

[Table 1]

	支持体	現像液	消去液	消去性	近接画像 にじみ	現像性	印刷汚し 回復性	耐刷性
実施例 1	支持体 1	現像液 1	消去液 1	A	A	A	5 枚	20 万
比較例 1	支持体 2	現像液 2	消去液 2	B	B	A	45 枚	15 万
比較例 2	支持体 1	現像液 2	消去液 2	A	C	C	5 枚	5 万
比較例 3	支持体 2	現像液 1	消去液 1	D	B	B	40 枚	20 万

[Translation done.]



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- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the outline cross section showing an example of the electrolyzer which performs electrolysis processing in the manufacture method of the base material of the photosensitive lithography version invention concerning claims 1-14.

[Drawing 2] It is the outline cross section showing an example of the electrolyzer which performs electrolysis processing in the manufacture method of the base material of the photosensitive lithography version invention concerning claims 1-14.

[Drawing 3] It is the outline cross section showing another example of the electrolyzer which performs electrolysis processing in the manufacture method of the base material of the photosensitive lithography version invention concerning claims 1-14.

[Description of Notations]

1 Cell

2, 3, 4, 5 Support roll

6 Aluminum Containing Alloy Board Web

a-x Electrode

[Translation done.]